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Memorandum

TO : Dr. S. Allan Lough, Assistant Director for Radiological Physics, DBM, HQ

DATE: January 11, 1968

FROM : James E. McLaughlin, Director
Radiation Physics Division, HASL

SUBJECT: REPORTS ON ENVIRONMENTAL RADIATION MEASUREMENTS MADE IN MAY, 1967

A HASL report of the Bikini Atoll environmental radiation measurements by H. Beck, B. Bennett and T. McCraw is completed and is being printed. Very soon, we will send you copies for your possible use.

The authors have also submitted an abstract of this work to the Health Physics Society for consideration for the June 1968 meeting of the Society. As in the case of the HASL report, the measurements techniques and the data analyses will be emphasized, rather than possible interpretations and uses of the results. We, therefore, anticipate no difficulties in publicizing this work; is this anticipation all right?

Enclosure:
Abstract (2 copies)

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Arnold Joseph
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Health Physics Society Annual Meeting, Denver, Colorado, June 16-20, 1968

TITLE: External Radiation Survey of Bikini Atoll - May 1967

AUTHOR(S): Harold L. Beck and Burton G. Bennett, United States Atomic Energy Commission, Health and Safety Laboratory (HASL), NY, NY, and Tommy F. McCraw, United States Atomic Energy Commission, Division of Operational Safety, Washington, D. C.

ADDRESS:

ABSTRACT (double-spaced): Abstracts exceeding 200 words will NOT be considered.

An intensive radiological survey of the islands of Bikini Atoll was conducted in late April and early May of 1967, nine years after cessation of extensive testing of nuclear devices in the area. The survey included general observations of the prevailing environmental conditions and a detailed investigation of external environmental radiation levels. Exposure rates due primarily to penetrating gamma radiation were measured, and the principal radioisotopes contributing to the total exposure rate on each of the major islands of the atoll were determined.

Instrumentation utilized included a field gamma spectrometric system, a high pressure ionization chamber, scintillation and G.M. survey meters, and thermoluminescent dosimeters. A large number of soil samples were taken for laboratory NaI(Tl) and Ge(Li) gamma spectral analysis.

Total exposure rates were found to vary considerably from site to site and island to island. Levels measured over soil ranged from less then 10 μR/hr to over 500 μR/hr with the highest levels usually found in the more thickly vegetated areas. Major contributors to the radiation fields usually included ^{137}Cs, ^{60}Co, ^{125}Sb, and ^{102m}Rh, although, a large number of other isotopes were also detected.

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Send this original plus 15 copies to: E. G. Struxness, Health Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37830

DEADLINE: February 1, 1968

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Health Physics Society Annual Meeting, Denver, Colorado, June 16-20, 1968

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